Exercise and Frailty

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Objectives
To discuss characteristics of frail older adults and consider the impact of these characteristics on physical activity and exercise prescription.

I. Frailty

A. Defining frailty – many different definitions

- Older adults with a high number of chronic conditions and illnesses
- Older adults who require assistance in activities of daily living
- Frailty characterized by a decrease in reserve capacity and increased risk for disability (Buchner and Wagner, 1992)

B. Pathogenesis of frailty

- Low-grade physiologic loss resulting from a sedentary lifestyle
- Rapid loss due to acute insults (illness, injuries, major life events) that result in periods of limited activity and bedrest.
- To some extent, frailty is preventable

C. Project Homestretch

- Joint project between Department of Rehabilitation Medicine, University of Washington and Aging and Disability Services
- Developed a home based exercise program for frail older adults with Type 2 diabetes
- Comprehensive evaluation and instruction in a home based exercise program targeting: strength, flexibility, balance and gait, aerobic conditioning
- Two year project, 24 ADS clients and 24 healthy older adults

D. Characteristics of frail older adults compared to healthy older adults

- Reduced physical activity and exercise
- Increase in the number and severity of comorbidities
- Increase in the number of medications
- Medically fragile, unstable hypertension, blood sugars
- Required assistance for activities of daily living
- Increased falls and fall risk
- Poor Outcomes Expectation – not all believe in the importance of exercise for their health and function

- Poor Self Efficacy – don't believe that they can exercise safely
    - Fear of falling
    - Fear of injury
- Motivation - fewer "reasons" to exercise – many homebound with limited participation in community activities
- Reduced social support for exercise (e.g. often alone, limited friends available to exercise with)

II. Exercise Programs for Frail Older Adults

1. Components of exercise program are the same
    - Strength
    - Flexibility
    - Posture/Balance
    - CV Endurance

2. Begin more slowly, progress more slowly
    - No weights
    - Short duration
    - Low level of exertion
    - Modify program in response to change in medical status

3. Modify exercises themselves
    - More done in sitting
    - Decreased weights
    - Emphasis on balance and gait training to reduce falls

4. Instruction on how to exercise safely
    - Correct form to prevent injury
    - Set up environment for safety
    - Prevent falls

5. Monitor response to exercise carefully
    - Perceived exertion
    - HR
    - BP
    - Blood sugar

6. Importance of education
    - Motivation
    - Outcomes Expectation
    - Self-Efficacy

IV. Conclusions

- Exercise is essential to all older adults, but especially to frail older adults
- Basic components of an exercise program are unchanged

- Modify exercises
- Monitor response to exercise
- Motivate and educate

References

Bassey EJ, Fiatarone MA, O'Neill EF, et al. Leg extension power and functional performance in very old men and women. Clin Sci (Colch).1992;52:321-327.

Buchner DM, Wagner EH. Preventing frail health. Clin Geriatr Med 1992 Feb;8(1):1-17.

Bortz WM. A conceptual framework of frailty: A review. J of Gerontology: Medical Sciences 2002;57A(5):M283-M288.

Fiatarone -Singh MA. Exercise comes of age: rationale and recommendations for a geriatric exercise prescription. J of Gerontology: Medical Sciences 2002;57A(5):M262-M282.